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Desertathrips chuquiraga gen. et sp.n. (Thysanoptera, Thripidae) from Argentina

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Abstract

A new genus and species of Thripidae, *Desertathrips chuquiraga*, is described from Mendoza, Argentina, from the flowers of the endemic plant *Chuquiraga erinacea* (Asteraceae). Similar to *Anaphothrips* species in lacking any long pronotal setae, this species is one of a small group of Neotropical Thripinae in which males have a glandular opening between the second and third abdominal sternites. A check-list is included of 120 Thysanoptera species in 69 genera recorded from Argentina.

Key words: Thripidae, Thripinae, *Desertathrips* new genus, *Chuquiraga erinacea*, South America

Introduction

The biological diversity of the Thysanoptera fauna of Argentina is scarcely known, mainly because of the limited amount of specialist field studies and collecting efforts. A full review of the available information concerning the thrips fauna of this country was provided by Prof. Luis De Santis and his co-workers (De Santis *et al.*, 1980). That review made reference to about 108 Thysanoptera species in Argentina, and since then scarcely 10 additional species have been recorded or described from this country (De Santis, 1995; De Santis, 1998; de Borbón *et al.*, 1999; Mound & Zapater, 2003; Berzosa & Maroto, 2003; de Borbón 2004; La Rosa *et al.*, 2004; de Borbón, 2005; Berzosa, 2006; Zamar & Neder de Roman, 2006; Mound & Pereyra, 2008). In contrast, the recorded thrips fauna of Australia increased from 400 to 700 species in 30 years (Mound & Tree, 2007). Even allowing for the fact that the land area of Australia is rather more than twice that of Argentina, there seems a strong possibility that the real thrips fauna of Argentina will eventually prove to be considerably greater than the 120 species currently recorded (Table 1).

De Santis *et al.* (1980) refer to a total of 24 genera of Thripidae from Argentina, but to these de Borbón (2004, 2005) has added *Kurtomathrips* and *Hydatothrips*, and some species of *Chirothrips* are now placed in *Arorathrips*. The genera and species recorded from Argentina are listed in Table I, using the currently accepted classification (Mound, 2008). Further studies are necessary to clarify the real number of thrips species for Argentina. Those would need to include a full examination of the extensive Thysanoptera collection at the Museum of La Plata.

The purpose of this contribution is to describe a new genus and species of Thripidae-Thripinae that is presumably endemic to southern South America. This thrips has been found in good numbers at two localities of Mendoza province, but only on flowers of *Chuquiraga erinacea* Don (Figures 1–2). Larvae were found together with both sexes of the thrips, indicating that this species of Asteraceae is the true host. This bushy species is widespread from Jujuy to north of Patagonia in Argentina, and the genus includes about 40 xeromorphic species found only between the Andes and Patagonia (Correa, 1971). Mendoza is located in the cen-

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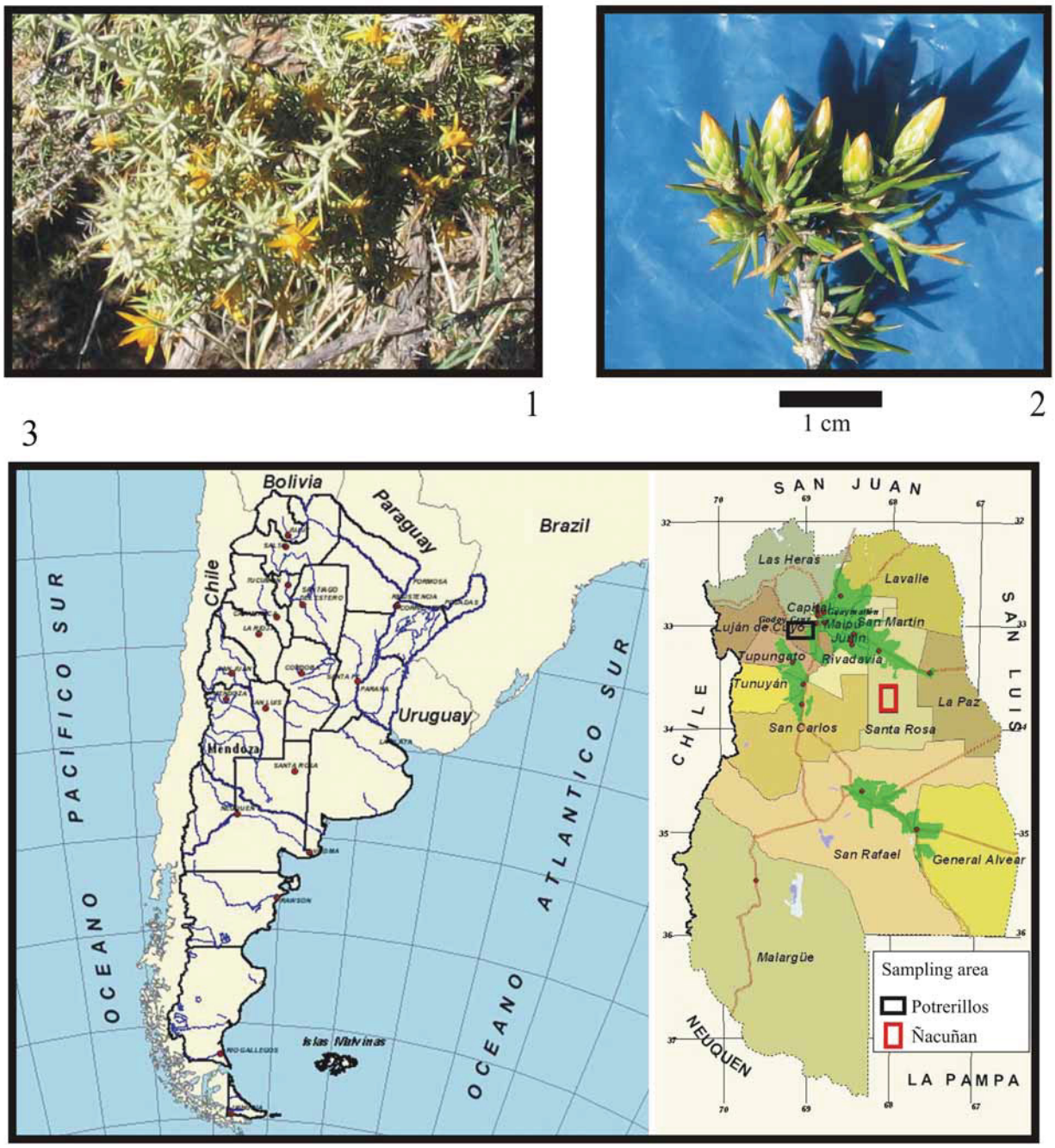
tral western part of Argentina (Figure 3). This is an arid region of the country that borders with Chile through the cordillera of Los Andes and with Patagonia to the south.



FIGURES 1–3. (1) Branch with leaves and flowers of *Chuquiraga erinacea*; **(2)** Floral bud of *C. erinacea*: (**3)** Sampling area (Maps prepared by Dario Soria of CRICYT lab).

Material and methods

The host-plant flowers were shaken over a plastic white plate and, using a small brush, the thrips were collected into a mixture of 10% alcohol, 5% acetic acid, and 0.1% Triton X–100 (J.S. Bhatti, personal communication). The thrips were macerated in 5% NaOH solution to remove the body contents, and dehydrated progressively through a series of alcohols and fully cleared in clove oil before being mounted into Canada bal-

sam (Mound and Marullo 1996).

TABLE 1. Thysanoptera recorded from Argentina.

AEOLOTHRIPIDAE

Aeolothrips fasciatus (Linn.)
Dactuliothrips kaszabi Pelikan
    malloi Tapia
Erythrothrips gemmatus Pelikan
Franklinothrips lineatus Hood
    tenuicornis Hood
Gelothrips monrosi (De Santis)
    topali (Pelikan)
Stomatothrips angustipennis Hood
    bahamondesi De Santis #
    rotundus Hood

HETEROTHRIPIDAE

Heterothrips cacti Hood
    clusiae Hood
    flavitibia Moulton
    marginatus Hood
    moestus De Santis
    myrceugenellae Gallego
    pastraniae Tapia

MELANTHRIPIDAE

Dorythrips edentulus De Santis
    hastatus De Santis

THRIPIDAE – PANCHAETOTHRIPINAE

Arachisothrips secticornis Hood
Caliothrips phaseoli (Hood)
Dinurothrips vezenyii Bagnall
Heliothrips haemorrhoidalis (Bouché)
Hercinothrips femoralis (Reuter)
Hoodothrips constrictus (Hood)

THRIPIDAE – DENDROTHRIPINAE

Pseudodendrothrips mori (Niwa)

THRIPIDAE – SERICOTHRIPINAE

Hydatothrips sp. indet.
Neohydatothrips denigratus (De Santis)
    fasciatus (Moulton)
    hemileucus (Hood)
    lassatus (De Santis)

THRIPIDAE – THRIPINAE

Aneristothrips rostratus De Santis
Apterothrips apteris (Daniel)
Aptinothrips rufus Haliday
Arorathrips crassiscelis (zur Strassen)
    fulvus (Moulton)
    mexicanus (Crawford)
    xanthius (Hood)
Bregmatothrips venustus Hood
Chirothrips frontalis Williams
    texanus Andre
Desertathrips chuquiraga de Borbón
Drepanothrips reuteri Uzel
Enneothrips flavens Moulton
Frankliniella amigoi Berzosa & Maroto
    australis Morgan
    brevicaulis Hood
    cognata Hood
    colihue De Santis
    difficilis Hood
    distinguenda Bagnall*
    frumenti Moulton
    gemina Bagnall
    gracilis Berzosa
    insularis (Franklin)
    occidentalis (Pergande)
    oxyura Bagnall
    platensis De Santis
    rodeos Moulton*
    schultzei (Trybom)
    valdiviana Sakimura & O'Neill
Kurtomathrips desantisi de Borbón
Limothrips cerealium Haliday
Microcephalothrips abdominalis (Crawford)
Pezothrips dianthi (Priesner)
Plesiothrips aczelli De Santis
    brunneus Hood
Pseudothrips similis De Santis
Scirtothrips manihoti Bondar
Taeniothrips inconsequens (Uzel)
Tenothrips frici (Uzel)
Thrips australis (Bagnall)
    simplex (Morison)
    tabaci Lindeman
Trichromothrips walteri (Crawford)

PHLAEOTHRIPIDAE – IDOLOTHRIPINAE

Allothrips brasilianus Hood
Carientothrips denticulatus (De Santis)
Compsothrips graminis (Hood)
    hoodi (De Santis)
    pampicolla (De Santis)

walteri (Watson)
Elaphrothrips surinamensis Priesner
Gastrothrips mandiocae (Moulton)
Neosmerinthothrips annulipes (Hood)
Pygothrips longiceps Hood

PHLAEOTHRIPIDAE – PHLAEOTHRIPINAE

Acanthothrips grandis (Karny)
Amynothrips andersoni O'Neill
Apterygothrips grassoi (De Santis)
Austrothrips verae Bréthes
Baenothrips erythrinus (Pelikán)
Docessissophothrips travassosi (Hood)
Epomisothrips araucariae Hood
Eupathithrips silvestrii (Buffa)
Gynaikothrips ficorum (Marchal)
Haplothrips fiebrigi Priesner
heliotropica Mound & Zapater
leucanthemi (Schrank)
trellesi Moulton
Holopothrips urinator De Santis
Holothrips tumidus De Santis
obscurifemorae (Gallego & Merlo)
Hoplothrips corticis (De Geer)
Karnyothrips flavipes (Jones)
longiceps (Hood)
texensis (Hood)
Leptothrips mali (Fitch)
Liothrips atricolor De Santis
tandiliensis (Lindeman & Gemignani)
tractabilis Mound & Pereyra
vernoniae Moulton
Lissothrips uniformis Pelikán
Pristothrips aaptus Hood
Pygmaeothrips angusticeps (Hood)
Scopaeothrips bicolor (Hood)
Sedulothrips vigilans (Hood)
Symphyothrips concordiensis (Lindeman & Gemignani)
reticulatus Watson
Treherniella atrata De Santis
Tylothrips osborni (Hinds)

#Probable synonym of *Stomatothrips rotundus*
*Probable mis-identification at La Plata Museum
Records of *Thrips macullicollis* (Hood) and *Frankliniella tritici* (Fitch) are excluded (see De Santis, 1998)

***Desertathrips* gen. n.**

Type-species *Desertathrips chuquiraga* **sp.n.**

Thripidae-Thripinae with females and males macropterous or micropterous. Antennae 9-segmented (Fig.

4), sense cones on III and IV forked, IV–VI with few microtrichia. Head with three pairs of ocellar setae (Fig. 5), pair III lateral to ocellar triangle; compound eyes with 6 pigmented facets; mouth cone long, extending between fore coxae; maxillary palps slender, 3-segmented. Pronotum with no long setae, dorsal surface with closely spaced transverse striae (Fig. 6); prosternal ferna weak and not fused medially. Mesonotum transversely reticulate, with three pairs of setae, median pair not close to posterior margin (Fig. 7). Metanotum irregularly reticulate, median setae near anterior margin; campaniform sensilla absent (Fig. 8). Mesothoracic furcal spinula absent or very weakly developed, metathoracic furca without spinula. Tarsi 2-segmented. Forewing curving forward slightly at apex, first and second veins with setal rows irregular; scale with five veinal setae and one discal seta; fringe cilia wavy (Fig. 9). Abdominal tergites with complete transverse sculpture and with smooth narrow craspedum on posterior margin, campaniform sensilla close to posterior margin; two pairs of tergal setae almost equal in size, median pair variable with distance between their bases about 1.0 to 1.5 times their length (Fig. 10); tergite VIII with posteromarginal comb of long fine microtrichia, laterally with toothed craspedum (Fig. 11); tergite X with longitudinal split dorsally (Fig. 12). Sternites without marginal craspedum, III–VII with three pairs of posteromarginal setae and transverse row of discal setae (Fig. 13); sternite II with two pairs of posteromarginal setae, and one or two discal setae. Males with glandular pore opening between sternites II and III (Fig. 14); tergite IX with two pairs of stout setae (Fig. 15).

Relationships. The type species of this genus appears to be near to *Pseudothrips similis* De Santis because of the 9-segmented antenna and presence of sternal discal setae. *P. similis* should possibly be included in this new genus, but the only known specimen is in poor condition such that it is not possible to see if the sensoria on antennal segments III and IV are simple or forked. Moreover, the forewings of *P. similis* have two continuous rows of setae on the forewings, and the inner posteroangular setae are longer than in the new species. *Baileyothrips* is similar in many character states to *Desertathrips*, but has four or five pairs of sternal marginal setae. *Anaphothrips* species resemble *Desertathrips* in lacking long setae on the pronotum. However, *Anaphothrips* species do not have a craspedum on the abdominal tergites, and males have a porous glandular area medially on the sternites (Nakahara, 1995). The glandular opening between the second and third abdominal sternites in this new species is a character known in only a few genera, mainly from the Neotropics, including *Ameranathrips*, *Apterothrips*, *Baileyothrips*, *Charassothrips*, *Enneothrips*, *Pseudothrips*, *Psydrothrips* and *Xerothrips* (Mound & Marullo, 1996), but none of these have the combination of character states found in this new genus (Table 2).

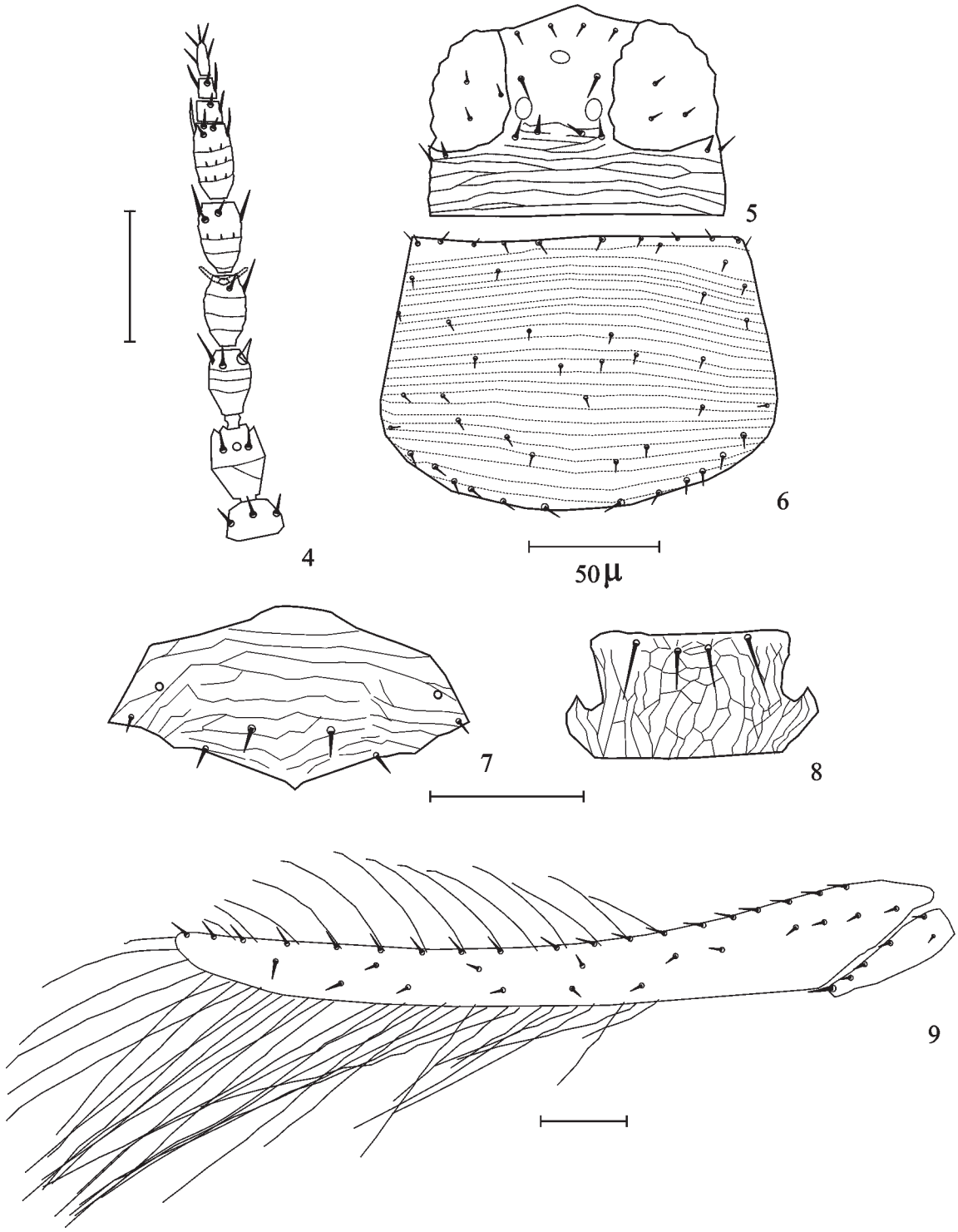
TABLE 2. New World Thripinae with glandular opening between sternites II–III of males. The number of species in each genus is indicated between parentheses.

Genus	Antennal segments	Sensoria on III & IV	Sternal discal setae	Sternites with craspedum	Tergal craspedum
Ameranothrips (1 sp)	8	Forked	Absent	Present	Present
Apterothrips (2 spp)	8/9	Simple	Absent	Present	Present
Baileyothrips (2 spp)	8	Forked	Present	Absent	Present
Charassothrips (4 spp)	7/8	Forked	Absent	Absent	Present
Desertathrips (1 sp)	9	Forked	Present	Absent	Present
Enneothrips (5 spp)	9	Forked	Absent	Absent	Absent
Pseudothrips (6 spp)*	8/9	Forked	Absent	Present/Absent	Present
Psydrothrips (2 spp)#	9	Forked	Present	Absent	Absent
Xerothrips (1 sp)#	8	Forked	Present	Absent	Absent

* *Pseudothrip. similis* may belong in another genus.
# Species with prominent pronotal posteroangular setae.

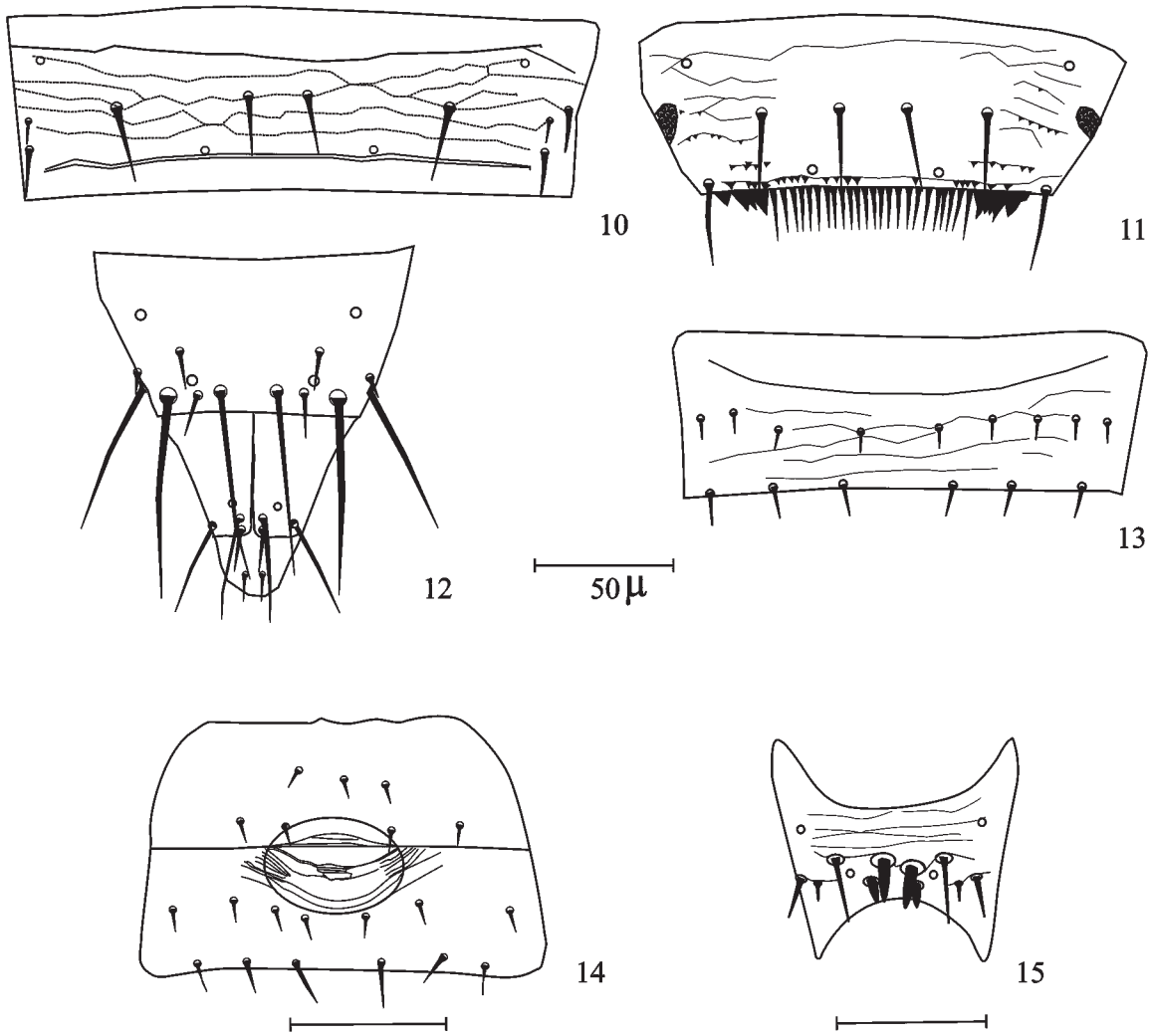
***Desertathrips chuquiraga* sp. n.**

Female macroptera: Body colour yellow; head brownish yellow, ocelli apparently lacking pigments, mouth cone brown; antennal segment I pale yellow, II yellow, III–V brownish yellow, darker at apex, VI–IX brown; abdomen pale yellow; forewings yellowish.



FIGURES 4–9. *Desertathrips chuquiraga* female. (**4**) Right antenna; (**5**) Head; (**6**) Pronotum; (**7**) Mesoscutum; (**8**) Metascutum; (**9**) Left forewing.

Head with two pairs of postocular setae behind ocelli, two pairs laterally near cheeks; occipital region transversely striate. Antennal segment III with forked sensorium dorsolaterally, but inner branch weak giving appearance of a simple sense cone; segment IV with forked sensorium ventrally. Forewing first vein usually with a group of about five setae at base, then 6 to 12 setae irregularly spaced; second vein with five to eight setae irregularly spaced. Abdominal tergites I–VIII with transverse lines of sculpture, posteromarginal craspedum smooth and not lobed; comb on tergite VIII with closely spaced, long fine microtrichia replaced laterally with toothed craspedum. Sternites with about eight discal setae in irregular transverse row; sternite II with one or two discal setae.



FIGURES. 10–15. *Desertathrips chuquiraga.* (**10**) Female tergite VI; (**11**) Female tergite VIII; (**12**) Female tergites IX and X; (**13**) Female sternite VI; (**14**) Male sternites II & III; (**15**) Male tergite IX.

Measurements (holotype female in microns). Distended body length 1100. Head, length 90; width 137; ocellar setae III 9. Antennal segments length (width), I 17 (24); II 31 (22); III 29 (17); IV 27 (20); V 32 (18); VI 32 (15); VII 10 (10); VIII 7 (7); IX 13 (5). Pronotum, length 120; width 171; median posteromarginal setae 12. Forewing length 500. Metanotal setae length; median pair 17; lateral pair 22. Tergite VI setae B1 24; tergite VIII setae B1 29; comb teeth 17; tergite IX setae B1 78, setae B2 71.

Male macroptera and microptera. Similar to female in color and structure but smaller, microptera with wing lobe length about 0.4 of thorax width; glandular pore opening present between sternites II and III; tergite VIII with a complete posteromarginal comb; tergite IX with two pairs of stout brown thorn-like setae

Measurements (paratype male microptera in microns). Body length distended 850. Head, length 78; width 107; ocellar setae III 6. Antennal segments length (width), I 12 (19); II 27 (21); III 29 (15); IV 26 (15); V 28 (16); VI 27 (15); VII 7 (10); VIII 7 (5) IX 10 (5). Pronotum length (width), 105 (134). Torax width, 161. Metanotal setae length; median pair 5; lateral pair 6. Forewing length, 59.

Second instar larvae: Body yellow to pale yellow; tergites IX–X each with brown posterior band, narrower on IX. Body with plaques arranged transversely on tergites and sternites. Body setae short except pair B1 of sternite VII long, flageliform and placed far apart. Tergites II and VIII each with a pair of spiracles. Tergite IX without posteromarginal teeth, paired campaniform sensilla scarcely further apart than bases of setae B1.

Material examined. Holotype female macroptera, **ARGENTINA**, Mendoza, Potrerillos, from *Chuquiraga erinacea* blossom, 24.xi.2007 (de Borbón) (Museo de La Plata). Paratypes: 20 female macropterae, 2 female micropterae, collected with holotype; same host, locality and collector - 9.xii.2007, 9 female macropterae, 1 male microptera; 10.xi.2007, 11 female macropterae; 17.xii.2006, 4 female macropterae, 1 male microptera. Mendoza, Ñacuñan, 12 female 1 male macropterae from *Chuquiraga erinacea* blossom, 19.xi.2006 (de Borbón).

Paratypes will be deposited in the Museo de La Plata, also in the Laboratorio de Fitovirología de la Estación Experimental Agropecuaria, Mendoza INTA, and in the Natural History Museum, London, the Senckenberg Museum, Frankfurt, and the Australian National Insect Collection, CSIRO, Canberra.

Comments. A total of 62 adults were mounted onto slides. Fifty seven were female macropterae, two female micropterae, two male micropterae and one male macroptera. This suggests that female macropterae are more numerous than female micropterae and males, but it would be necessary to examine larger samples to estimate properly the correct ratios between the sexes and macropterae/micropterae, and whether these vary with locality and season.

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